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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/777,925	02/06/2001	Dongsoo S. Kim	7703/17	6190

7590 08/25/2004

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EXAMINER

ALEXANDER, JESSE NELSON

ART UNIT PAPER NUMBER

2666

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/777,925	KIM ET AL.	
	Examiner	Art Unit	
	Jesse N. Alexander	2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>20040812</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: the correct U.S. Patent No. for the blank at page 14, line 14 is US 6,426,941 B1.

Appropriate correction is required.

Drawings

2. The drawings are objected to because the label for element 230 on Fig. 6 is illegible. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 5 is objected to because of the following informalities: **the phrase "said first node" (line 2) should be replaced with "said first edge node"**. Appropriate correction is required.
4. Claim 6 is objected to because of the following informalities: **the phrase "said second node" (line 2) should be replaced with "said second edge node"**. Appropriate correction is required.
5. Claims 14 through 21 objected to because of the following informalities: **Independent apparatus claims 14, 15, 19 depend upon method claim 11. They should be changed to method claims, if that is what applicant intends**. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
7. Claims 7 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
8. The term "less than ten percent" in claims 7 and 15 is a relative term which renders the claims indefinite. The term "less than ten percent" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the

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scope of the invention. The limitation provides no lower bound on said overall capacity of said working virtual private network path.

9. Claims 16 through 18 rejected because they depend on claim 15.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1, 2, 3, 8, 9, 10, 12, 13, and 19 rejected under 35 U.S.C. 102(e) as being anticipated by Vaman et al. (US 6426941 B1).

Regarding claims 1, 2, 3, 12, 13 Vaman discloses a method and apparatus for implementing protection switching for a virtual private network comprising the steps of:

establishing a working virtual private network path and a protection virtual private network path (**col. 3, lines 23-32**) between a first edge node and a second edge node (**Fig. 1, elements 22 and 28, respectively**)

detecting traffic failure in the working virtual private network path; and switching traffic from the working virtual private network path to the protection virtual private network path when a problem or failure is indicated in the working virtual private network path. (**col. 3, lines 25-29**)

and switching traffic from the working virtual private network path to the protection virtual private network path when detected traffic congestion exceeds a predetermined threshold. **(col. 5, lines 27-29, the ability to determine “an imminently unacceptable level of congestion” inherently requires a threshold)**

Furthermore, it was well known in the art that protection switching schemes include detecting a return to proper functioning of the working virtual private network path; and switching traffic from the protection virtual private network path to the working virtual private network path when said return to proper functioning of the working virtual private network path is detected to save bandwidth as delineated in Vaman et al. **col. 7, lines 20-24.**

Regarding claims 8, 9, 10, and 19 Vaman et al. discloses a method comprising:

- sending time stamps across said working virtual private network path and said protection virtual private network path; **(time stamps in the form of delay information contained in synchronizing OAM messages as described in col. 4, lines 30-34)**
- utilizing said time stamps for synchronizing data transmission across said working virtual private network path and said protection virtual private network path **(col. 6, lines 48-56);** and
- utilizing said time stamps to enable recovery of data lost on said working virtual private network path and said protection virtual private network path **(source node retransmits recovered (“last known good”) data in**

**response to a AIS from the destination node (col. 6, line 66 through
col. 7, line 6)**

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 4, 5, 6, 11, 14, 15, 16, 17, 19, 20, 21, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vaman et al. (US 6,426,941 B1) in view of Dantu et al. (US 6,532,088 B1).

Regarding claims 4, 5, 6, 15, 16 17, 19, 20 and 21, the method further comprising:

establishing a management channel in at least one of said working or protection virtual private network paths, **(col. 4, lines 24-26)**

connecting said management channel between said first edge node and said second edge node; **(again, col. 4, lines 24-26)**

transmitting time stamps across said management channel; **(time stamps in the form of delay information contained in synchronizing OAM messages as described in col. 4, lines 30-34)**

transmitting network measurement parameters across said management channel; **(OAM messages are known in the art to transmit maintenance and performance monitoring information as stated in col. 1, lines 59-62)**

utilizing said time stamps for synchronizing data transmission across said working virtual private network path and said protection virtual private network path **(col. 6, lines 48-56);** and

utilizing said time stamps to enable recovery of data lost on said working virtual private network path and said protection virtual private network path **(source node retransmits recovered ("last known good") data in response to a AIS from the destination node (col. 6, line 66 through col. 7, line 6)**

However Vaman et al. fails to explicitly teach analyzing said time stamps and said network management parameters to detect failures or congestion in said working and protection virtual private network paths by an algorithm in said first and/or second nodes.

Dantu et al. teaches the concept of signals containing management and network condition information (col. 14, lines 9-14) being sent to every node in the network.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Vaman et al. invention with the teachings of **Dantu et al.** such that said time stamps and said network management parameters would have been used to detect failures or congestion in said working and protection virtual private network paths by an algorithm in said first and/or second nodes.

The motivation for said modification would have been to allow the capability to quickly determine the quality of the unused standby or protection links before protection switching given that the Vaman et al. invention sends of continuously sends OAM cells over both links.

Regarding claims 11, 22, and 23, Vaman et al. fails to disclose:

- a method further comprising: establishing quality of service (QoS) parameters for said working virtual private network path and said protection virtual private network path;
- assigning quality of service parameters to said working virtual private network path and said protection virtual private network path ; and
- synchronizing said first edge node and said second edge node according to the quality of service parameters.

Dantu et al. teaches a plurality of packets labeled with QoS ratings or parameters in an MPLS labeled virtual path embodiment described in **col. 17, lines 4-6, fig. 11, element 1116, and also col. 11, lines 33-39.**

Dantu et al. also teaches in **col. 11, lines 29-32** that the edge nodes are capable to process labels in MPLS protocol implemented VPNs.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Vaman et al. invention to include the Dantu et al. concept of assigning and labeling packets with QoS ratings of parameters, given that the methods of establishing said QoS parameters are well known in the art.

Furthermore it would have also been obvious to one having ordinary skill in the art at the time the invention was made that the Dantu et al. edge nodes would have been made capable to process QoS parameters in MPLS labels and store the results of said processing.

Moreover, it would have also been obvious to one having ordinary skill in the art at the time the invention was made that the that the act of processing of said QoS parameters for the same virtual path that passes through any two Dantu et al. edge nodes would synchronize said two edge nodes with respect to said QoS parameters for the said same virtual path because both said edge nodes would have to store said QoS parameters related to said same virtual path in their respective memories.

The motivation for said modifications would have been to allow the node to interpret said priority information in labels and thereby provision said nodes as stated by **Dantu et al. (col. 17, lines 6-14).**

Regarding claim 14, Vaman et al. discloses an apparatus further comprising a second data switch in **fig. 1, element 24 or 26**

However Vaman et al. fails to explicitly disclose an apparatus further comprising:

- a normal operation detector;
- wherein when said normal operation detector detects a return to normal functioning of said working virtual private network path, said second data switch switches said data from said protection virtual private network path to said working virtual private network path.

Dantu et al. teaches a memory and processor (**fig. 4, elements 402 and 404C**) capable to analyze and store physical network conditions on both the main (or working) and protection paths.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Vaman et al. invention in light of the Dantu et al. processor and memory such that the resultant apparatus would comprise a normal operation detector capable to detect a return to normal functioning of said working virtual private network path, such that said second data switch switches said data from said protection virtual private network path to said working virtual private network path.

The motivation for said modification would have been to save bandwidth and cost by using the protection path *only* when necessary as delineated in Vaman et al. **col. 7, lines 20-24.**

Allowable Subject Matter

14. Claims 7, and 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

15. The following is an examiner's statement of reasons for allowance:

Claims are allowable over prior art of record since the cited references taken individually or in combination fails to particularly disclose a method wherein said management channel uses less than ten percent of overall capacity of said working virtual private network path.

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It is noted that the closest prior art Vaman et al. discloses a management channel consisting a low bandwidth OAM cell stream in col. 4, lines 22-25.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- US-6,353,593 B1 Chen et al.
- US-6,721,269 Cao et al.
- US-5,712,847 Hata, Emi
- US-6,760,302 B1 Ellinas et al.
- US-6,580,690 B1 Damien, Souad
- US-6,041,037 A Nishio et al.
- US-5,959,972 A Hamami, Ilan
- US-5,870,382 A Tounai et al.
- US-5,715,237 Akiyoshi, Hitomi

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse N. Alexander whose telephone number is (703) 305-8709. The examiner can normally be reached on 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (703) 308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jna3



RICKY NGO
PRIMARY EXAMINER